

I. AMENDMENTS

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Upon entry of the present amendment, the claims will stand as follows:

Please cancel claims 23-32 without prejudice.

Claims 1 to 32. (Canceled)

33. (New) A method for extending the life span of an organism comprising administering an inhibitor of histone deacetylase to the subject in an amount effective to increase activity of at least one gene encoding a protein selected from superoxide dismutase, cytochrome P450, or glutathione S transferase to extend the life span of the organism.
34. (New) The method of claim 33, wherein the inhibitor of histone deacetylase is a butyric acid derivative.
35. (New) The method of claim 34, wherein the butyric acid derivative is selected from the group consisting of isobutyramide, monobutyryl, tributyryl, 2-phenylbutyric acid, 3-phenylbutyric acid, 4-phenylbutyric acid (PBA), phenylacetic acid, cinnamic acid, alpha-methyldihydrocinnamic acid, 3-chloropropionic acid and vinyl acetic acid.
36. (New) The method of claim 35, wherein the butyric acid derivative is soluble.
37. (New) The method of claim 35, wherein the butyric acid derivative is a salt.
38. (New) The method of claim 33, wherein the inhibitor of histone deacetylase is PBA and PBA is a salt.
39. (New) The method of claim 33, wherein the subject is a mutant organism.
40. (New) The method of claim 33, wherein the organism is a *Drosophila*.

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41. (New) The method of claim 40, wherein the *Drosophila* is a *Drosophila melanogaster*.
42. (New) The method of claim 41, wherein the *Drosophila melanogaster* is w^{1118} .
43. (New) The method of claim 40, wherein the *Drosophila* is a mutant *Drosophila*.